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POWERFUL PRODUCER AND SUPPLIER CLUSTERS IN EAST AND SOUTHERN GERMANY COULD REVIVE THE PHOTOVOLTAIC INDUSTRY'S FORTUNES.

Silver lining to the PV crisis

Silicon production is increasing and the material is getting cheaper, which helps manufacturers to lower their costs. (Photo: Bosch)

Low demand, massive oversupply of products and materials, price declines – the photovoltaic (PV) industry is experiencing hard times. In December 2011, module producer Solon declared bankruptcy, while Schott Solar closed its multi-crystalline wafer production in Jena. And now, the crisis has spread to China's solar industry. "Nearly all Chinese producers are reducing their lines," says Stefan de Haan, analyst with the US market research company IHS iSuppli. The global reduction of the cell and module plants in turn affects the machinery and plant manufacturers. Listed companies such as Manz, Centrotherm and Meyer Burger from Switzerland are reporting declining sales, incoming orders and order volumes. But there is hope still for the PV solar industry in Germany.

The German government will provide additional funding in the amount of €100 million

for PV research over the next five years. Thanks to the cooperation between political and research establishments and the solar industry, Carsten Körnig, General Manager of the solar industry association Bundesverband Solarindustrie (BSW), assumes that the industry's future prospects are positive. He said, "With 130,000 jobs, the German solar industry overshadows quite a few of the traditional economic sectors. Provided the funding conditions stay favourable, this number could grow even more."

Also, the PV industry engine shows no sign of slowing. Last year, Bavarian silicon producer Wacker Chemie invested nearly EUR one billion in the expansion of silicon production at Nünchritz in East Germany and created 500 additional jobs. The same number of jobs was created in 2011 at First Solar, the US-based thin-film specialist, which invested € 170 million to double the capacity of its module production in

the East German Frankfurt an der Oder to 500 MW.

The current silver lining also includes the Central German Solarvalley Mitteldeutschland, a cluster of research institutes, advanced companies and producers in Saxony-Anhalt, Saxony and Thuringia. Last year, the flagship of Solarvalley, Bosch Solar Energy, commissioned a centre of excellence in Arnstadt, Thuringia, which will combine research and development, cell and module production as well as a training centre under one roof. By 2012-end, 1,000 new jobs shall be created there.

In Thalheim in Saxony-Anhalt, module producer Sovello is increasing its production capacity from 180 MW to 250 MW. The company has installed special ovens for the production of wafers that use less silicon. These were purchased from the bankrupt US producer Evergreen Solar. "With an investment of approximately €35 million into these



In order to get ahead of their competition, manufacturers need to focus on better cell efficiency. (Photo: Bosch)

1 The growth of solar module production in Germany depends on the industry's innovation capability and political support. (Photo: aleo solar)

systems, we will protect the jobs over the next two years," said Sovello Director Reiner Beutel.

Plant manufacturers continue to innovate

The concentrated expertise in the Solarvalley cluster has been a deciding factor in attracting more investment. The location is interesting even for Asian manufacturers, who - one would think - could find better conditions in terms of lower labour costs and higher government grants in China or even Taiwan. For example, Leipzig-based Solarion is building a factory for thin-film modules with an investment of approximately €40 million provided by Taiwan's Walsin Lihwa, which purchased 49% of Solarion in 2010. "We are building our plant in Zwenkau because we need a highly professional environment of suppliers and research partners

to scale-up our technology from the pilot stage to mass production," said Stefan Nitzsche, Solarion Sales

Director. The thin-film specialist used the synergies of the cluster to bring 90 new jobs to the region.

The benefits of solar industry cluster in central Germany are flowing to other German regions too, like Baden-Württemberg, which is the home of Germany's mechanical engineering industry. Solarvalley producer Q-Cells commissioned its first production line from solar engineering specialist Centrotherm and helped the company get started in the solar business. Centrotherm now exports to all corners of the world, with Asia accounting for more than 85% of its sales volume. However, the company must ready itself for a tough year 2012 with declining sales and profits, because manufacturers ordered less equipment in 2011. Nevertheless, Centrotherm - as most other outfitters - is financially stable to maintain its strong commitment to innovation and thus retain a promising market position. According to the German Machinery and Plant

Manufacturers' Association (VDMA), German solar system suppliers achieved additional sales of just below 10% in the third quarter of 2011 compared to the corresponding quarter of the previous year, which bodes well for future investments.

Centrotherm's technological objectives are ambitious. "We would like to realise a further price reduction of at least 18% per year with our cells and modules," explained Technology Director Peter Fath. Plant manufacturer Grenzebach from Baden-Württemberg is also using this low demand period to push innovations. The company used to specialise in automation solutions for thin-film production. In future, it plans to also offer equipment for the installation of solar reflector fields for solar-thermal power plants as well as the production of so-called concentrator modules. "CPV technology is a growing, future-oriented sector of the PV industry," said Egbert Wenninger, Acting Sales

AS A RESULT SOLAR ENERGY IN GERMANY IS CURRENTLY BEING CRITICISED AS BEING TOO GENEROUS AND EXPENSIVE AND POLITICIANS WANT TO SEE DRASTIC REDUCTIONS



Thanks to higher throughput, production costs are decreasing. (Photo: Amonix)

Director with Grenzebach. In concentrator modules, integrated lens focus light in high concentration onto a tiny, highly efficient solar cell. Concentrators are highly suitable for use in countries with high levels of solarisation as they can use direct light very efficiently. As a result, several energy providers in the south-west of the US are already looking into this technology. At the moment, CPV modules are being produced manually, in low numbers, due to lack of equipment. "Thanks to our automation techniques, this is an opportunity to position ourselves successfully in the CPV market," said Wenninger.

Tight funding

Despite the many bright spots in the PV sector, challenges remain. In the mechanical engineering sector, competition is growing rapidly with outfitters from the US and China making inroads. "Chinese mechanical engineering companies are now

offering equipment for most process steps of solar cell production," said Eric Maiser, Managing Director of VDMA Photovoltaic Production Goods. Those who want to succeed as suppliers in this segment must show rapid innovation, and this in turn, requires investment and more scientific personnel. In regions such as Southern Germany, where some major plants are located, top-level personnel could become scarce. Principally, all solar machine producers need the same experts like chemists, physicists. As these skills are not readily available in the labour market, outfitters will have to fight over expertise, which could put a dampener on their competitiveness.

Quick innovation is also required when it comes to cells and modules. In the area of production, German companies are in a difficult situation because unlike their Chinese counterparts, they cannot access cheap government loans nor benefit from low labour costs. For these

reasons, they are under much higher pressure to lower their production costs. But an even more serious problem is looming ahead. According to the Federal Network Agency, installed solar capacity increased by 7,500 MW in 2011. As a result, solar promotion in Germany is currently being criticised as being too generous and expensive, and politicians want to see drastic reductions. If the Federal government were to actually cap the tariffs or put limits, experts fear this could stall the advance of Germany's PV industry.

(Article Courtesy: Solarpeq - International Trade fair for Solar Production Equipment. The event will be held in Düsseldorf from October 23-26, 2012. For more information, please e-mail Sebastian Pflügge at PflueggeS@messe-duesseldorf.de)